

REMARKS

Examiner P. Perkins is thanked for the thorough examination and search of the subject Patent Application. The Examiner is thanked for allowing Claims 8-25 and for withdrawing the previous rejection of Claims 1-7 and the finality of that office action.

All Claims are believed to be in condition for Allowance, and that is so requested.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 1-4 as being unpatentable over Jang et al (6,037,018) in view of Jang (6,004,863) is requested in accordance with the following remarks.

In the first embodiment of the invention, claimed in Claim 1, during the sputtering step of the HDP-CVD process, the oxide layer within the isolation trenches is disconnected from the oxide layer overlying the etch stop layer. (e.g. Claim 1, lines 19-21. See also top of page 9 of the Specification and Fig. 4). Notice that the oxide layer within the trenches 22 is disconnected from the oxide layer 20 over the etch stop layer 14. This is a critical step, allowing the removal of the remaining oxide 20 overlying the etch stop layer during the subsequent steps without using a polishing process. In Jang Fig. 11, the oxide layer 36a'', for example, over the etch stop layer 34a is disconnected from the oxide layer 36a' within the trenches. However, this disconnection requires a photoresist patterning and etching step as shown in Fig. 10 and as described in col. 15, line 38 through col. 16, line 24. In contrast, Applicants accomplish the disconnection without an additional step. The disconnection is accomplished by discontinuing the deposition component

of the HDP-CVD step while continuing the sputtering component until the disconnection is complete, as claimed in Claim 1, lines 16-21. Thus, the combination of Jang et al and Jang still does not disclose Applicants' invention – performing a disconnection of the oxide layer within the trenches from the oxide layer overlying the etch stop layer during the sputtering step of the HDP-CVD process.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 1-4 as being unpatentable over Jang et al in view of Jang is requested in accordance with the remarks above.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 5 and 6 as being unpatentable over Jang et al in view of Jang and further in view of Fu et al is requested in accordance with the following remarks.

It is agreed that Fu et al discloses removing the silicon nitride layer using hot phosphoric acid. Fu et al as well as the other references first uses CMP to remove the oxide layer outside of the trenches (col. 3, lines 28-32). None of the references teach or suggest disconnecting the oxide layer within the trenches from the oxide layer overlying the etch stop layer during the sputtering step of the HDP-CVD process.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 5 and 6 as being unpatentable over Jang et al in view of Jang and further in view of Fu et al is requested in accordance with the remarks above.

Reconsideration of the rejection under 35 U.S.C. 103 of Claim 7 as being unpatentable over Jang et al in view of Jang and further in view of Hao et al is requested in accordance with the following remarks.

Hao et al also discloses a CMP process for removing the oxide layer outside of the trenches, although they do teach that etching back may be used. Hao et al does not teach or suggest disconnecting the oxide layer within the trenches from the oxide layer overlying the etch stop layer during the sputtering step of the HDP-CVD process as claimed in Applicants' invention.

Reconsideration of the rejection under 35 U.S.C. 103 of Claim 7 as being unpatentable over Jang et al in view of Jang and further in view of Hao et al is requested in accordance with the remarks above.

Allowance of all Claims is requested.

It is requested that should Examiner Perkins not find that the Claims are now Allowable that the Examiner call the undersigned at 765 4530866 to overcome any problems preventing allowance.

Respectfully submitted,



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